REMARKS

Applicants have carefully reviewed the Office Action mailed March 20, 2006. Claim 29 is editorially amended. Reconsideration is respectfully requested in view of the foregoing amendments and the comments set forth below.

Interview of August 2, 2005

1. An Interview Summary of the interview on August 2, 2005 was enclosed with the Office Action. The Interview Summary requires that the Applicants file a statement of the substance of the interview. However, such a statement was previously filed with the Second Amendment After Final Rejection on August 29, 2005.

No *Prima Facie* Case of Obviousness

3. In the Office Action on pages 2-6 in section 4, claims 1-11, 16-21, and 25-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. US 2002/0191846 to Crinon et al. (hereinafter Crinon) in view of U.S. Patent No. 6,490,319 to Yang (hereinafter Yang). Further, in the Office Action on pages 6-8 in section 5, claims 12-15, 22-24, 28 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Crinon in view of Yang, and further in view of U.S. Patent No. 5,990,957 to Ryoo (hereinafter Ryoo). The Applicant respectfully traverses the rejections.

As per claim 1, claim 1 recites a "method for encoding a video sequence, said video sequence comprising a background composite and foreground regions, comprising the step of: encoding said video sequence based on balancing bits per pixel for said background composite

with bits per pixel for said foreground regions to achieve similar quality between the background composite and the foreground regions in a reconstructed video sequence."

In rejecting claim 1, the Office Action aligns Crinon with the recited "method for encoding a video sequence, said video sequence comprising a background composite and foreground regions, comprising the step of: encoding said video sequence." As recognized by the Office, Crinon fails to teach "encoding said video sequence based on balancing bits per pixel for said background composite with bits per pixel for said foreground regions to achieve similar quality between the background composite and the foreground regions in a reconstructed video sequence." To overcome the deficiencies of Crinon, the Office Action relies on Yang. The combination proposed by the Office Action fails to set forth a prima facie case of obviousness for at least five reasons.

First, Yang fails to teach "encoding said video sequence based on balancing bits per pixel for said **background composite** with bits per pixel for said **foreground regions** to achieve similar quality between the **background composite** and the **foreground regions** in a reconstructed video sequence." The Office Action asserts that Yang suggests this claimed limitation and, for support, cites Yang at: column 1, line 65 through column 2, line 7; column 3, lines 33-42; column 5, lines 23-28; and Figure 4, with its related disclosure. The techniques taught by Yang, however, are on a **per frame basis**. Yang, column 2, lines 38-39. Yang teaches encoding a **single** frame, and **not** a video sequence comprising a background composite and foreground regions. Moreover, Yang fails to teach balancing bits by considering a **video sequence**. Instead, Yang teaches an analysis of **one frame at a time**, and then moving onto the next frame. Yang, column 5, lines 23-26. Yang does not teach balancing bits across the **video sequence as a whole**. Thus, Yang fails to teach "encoding said video sequence based on

balancing bits per pixel for said background composite with bits per pixel for said foreground regions to achieve similar quality between the background composite and the foreground regions in a reconstructed video sequence."

Second, Crinon fails to motivate the change postulated by the Office Action. In justifying the combination, the Office Action asserts that Crinon teaches MPEG-4 coding, citing Crinon at paragraph [0016]. Crinon, however, does **not** teach MPEG-4 coding. The citation provided by the Office Action to support MPEG-4 coding by Crinon is to the background discussion of Crinon. Instead of teaching MPEG-4 coding, Crinon actually teaches using macroblocks to represent the foreground mask, which is fundamentally different from the MPEG-4 main profile standard. Crinon, paragraph [0010]. Crinon needs this non-MPEG-4 technique because, according to Crinon, shape is difficult to obtain and encode. Crinon, paragraph [0005]. Hence, Crinon fails to teach MPEG-4 coding. Thus, Crinon fails to motivate the change postulated by the Office Action.

Third, Crinon teaches away from the combination espoused by the Office Action. In justifying the combination, the Office Action asserts that Crinon teaches a desire to make background and foreground regions homogeneous, citing Crinon at paragraphs [0063]-[0065] and Figure 6. Crinon, however, does **not** teach that the background and foreground regions should be homogeneous. Instead, Crinon teaches applying a smoothing filter to the segmentation map to make the foreground and background regions more homogeneous. Crinon, paragraphs [0014] and [0064]. By applying the smoothing filter of Crinon, **small isolated foreground regions are removed**. This has **no** relation to balancing bits between a background composite and foreground regions. Thus, Crinon teaches away from the combination postulated by the Office Action.

Fourth, Yang teaches away from the combination postulated by the Office Action. Crinon teaches using a background mosaic and object segmentation in a video scene. Crinon, paragraph [0009]. As discussed above, Yang teaches an analysis of one frame at a time, and then moving onto the next frame. Yang, column 5, lines 23-26. Across a video sequence, however, the technique of Yang can produce disparate results from one frame to the next because the analysis is made on a frame-by-frame basis and **not** across the video sequence as a whole. Thus, one of ordinary skill would not be motivated by combine Crinon and Yang because the resulting video sequence could have quality problems across the video sequence. Hence, Yang teaches away from the combination postulated by the Office Action.

Fifth, the combination of Crinon and Yang proposed by the Office Action would not result in the claimed invention. Extending the controlling of the bit rate for a single frame as taught by Yang to controlling the bit rate for Crinon's video sequence is not a trivial task. Controlling the bit rate for a video sequence is much more complicated than controlling the bit rate for a single frame. For example, complex algorithms, such as, for example, those disclosed in the specification, are needed to control the bit rate of a video sequence. See, e.g., specification, Algorithms 1-6, 5', and 6'. One of ordinary skill in the art could not produce such algorithms based on the teachings of Crinon and Yang, and the claimed invention would not be apparent to one of ordinary skill in art. Instead, using the teachings of Crinon and Yang, one of ordinary skill in the art would be befuddled as to how to use the techniques of Yang for encoding a single frame in order to encode the background mosaic and sequence of moving objects of Crinon. Thus, the combination of Crinon and Yang would not result in the claimed invention.

Further, Ryoo fails to overcome any of the deficiencies of Crinon and Yang.

Therefore, claim 1 is allowable over the combination of Crinon and Yang.

Claim 2 recites similar subject matter to that recited in claim 1 and is, thus, allowable for similar reasons.

Claims 3-17 are dependent from claim 1 and are allowable as being dependent from an allowable claim.

Claims 18 and 19 recite similar subject matter to that recited in claim 1 and are, thus, allowable for similar reasons.

Claims 20-26 are dependent from claim 19 and are allowable as being dependent from an allowable claim.

Claim 27 recites similar subject matter to that recited in claim 1 and is, thus, allowable for similar reasons.

Claims 28-29 are dependent from claim 27 and are allowable as being dependent from an allowable claim.

THEREFORE, because all rejections have been overcome, it is submitted that claims 1-29 are allowable, and such allowance is requested.

Respectfully submitted,

Date: June 20, 2006

Michael A. Sartori, Ph.D.
Registration No. 41,289
Venable LLP
575 7th Street, NW
Washington, DC 20004
Phone: 202-344-4004
Fax: 202-344-8300

DC2-761282